FIG. 1

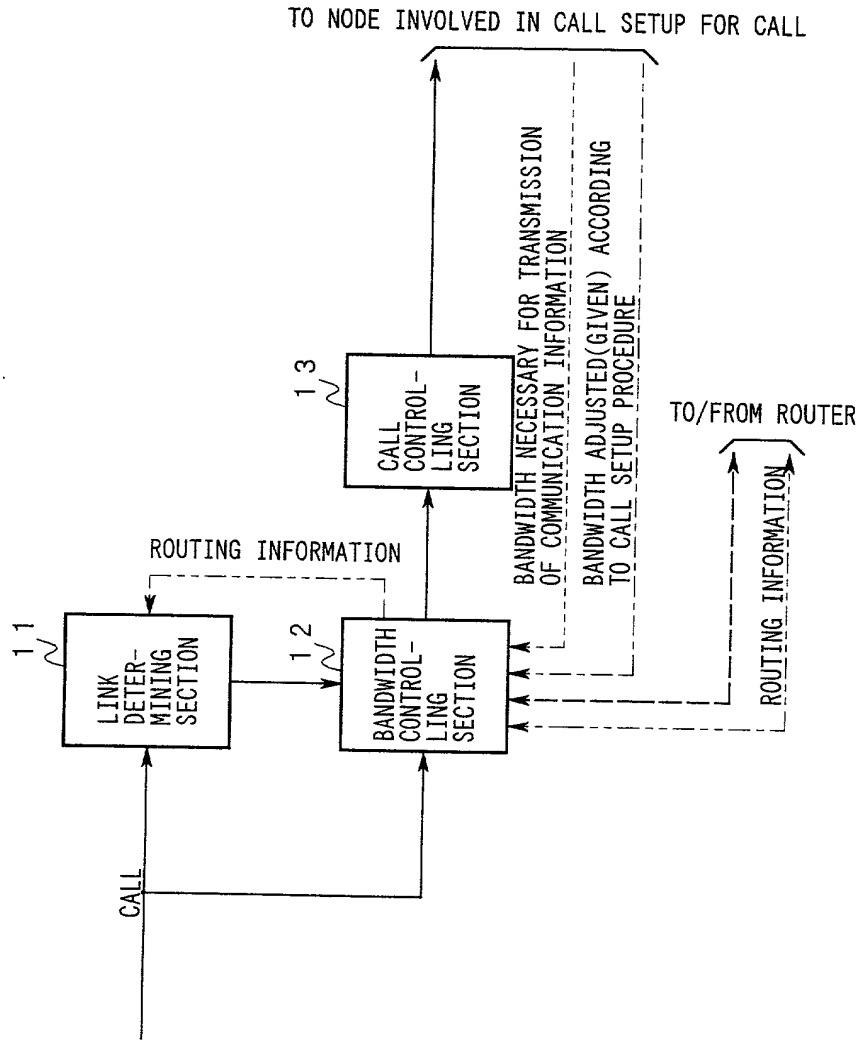

TO NODE INVOLVED IN CALL SETUP FOR CALL
13
CALL CONTROL-LING SECTION
BANDWIDTH NECESSARY FOR TRANSMISSION OF COMMUNICATION INFORMATION
BANDWIDTH ADJUSTED(GIVEN) ACCORDING TO CALL SETUP PROCEDURE
TO/FROM ROUTER
ROUTING INFORMATION
ROUTING INFORMATION
11
LINK DETER-MINING SECTION
12
BANDWIDTH CONTROL-LING SECTION
CALL

FIG. 2

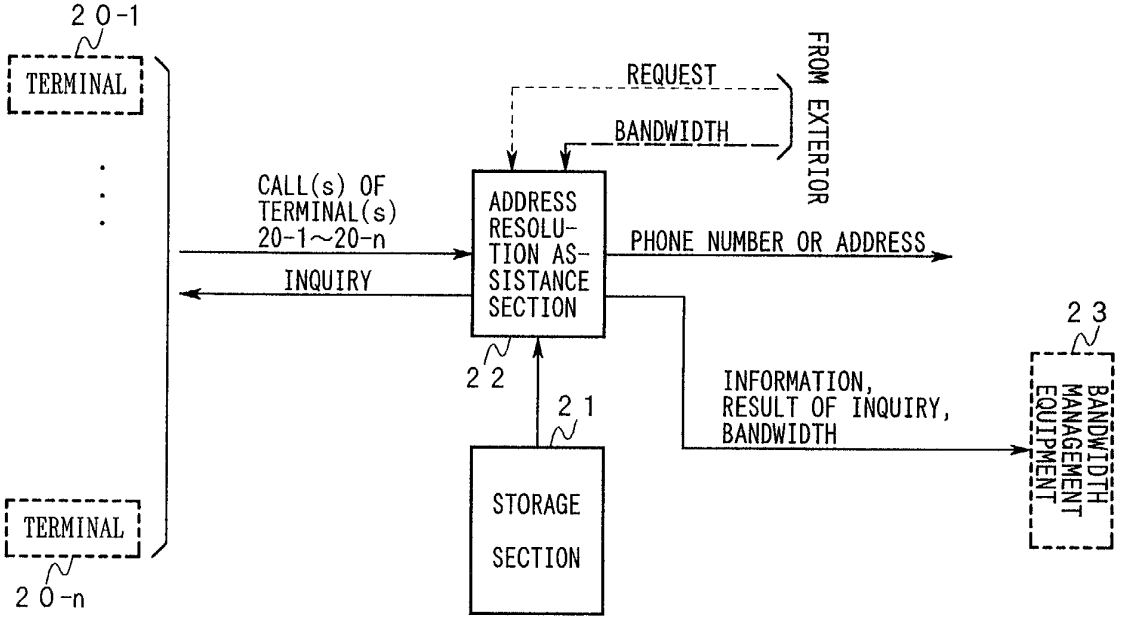

20-1
TERMINAL
TERMINAL
20-n
CALL(s) OF TERMINAL(s) 20-1~20-n
INQUIRY
REQUEST
BANDWIDTH
FROM EXTERIOR
ADDRESS RESOLUTION ASSISTANCE SECTION
22
PHONE NUMBER OR ADDRESS
21
STORAGE SECTION
INFORMATION, RESULT OF INQUIRY, BANDWIDTH
23
BANDWIDTH MANAGEMENT EQUIPMENT

FIG. 3

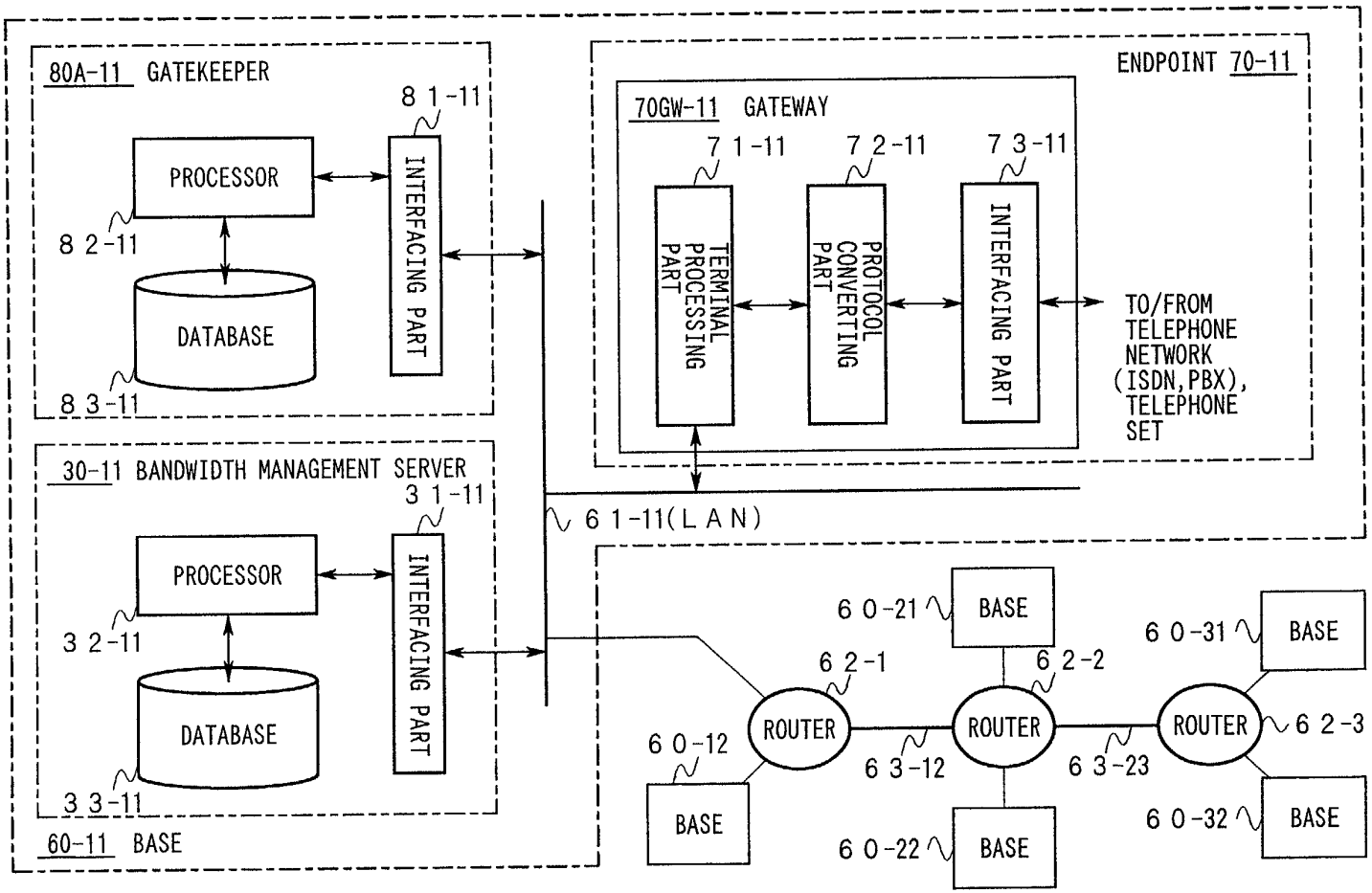

80A-11 GATEKEEPER
81-11
PROCESSOR
82-11
DATABASE
83-11
INTERFACING PART
30-11 BANDWIDTH MANAGEMENT SERVER
31-11
PROCESSOR
32-11
DATABASE
33-11
INTERFACING PART
60-11 BASE
ENDPOINT 70-11
70GW-11 GATEWAY
71-11
TERMINAL PROCESSING PART
72-11
PROTOCOL CONVERTING PART
73-11
INTERFACING PART
TO/FROM TELEPHONE NETWORK (ISDN, PBX), TELEPHONE SET
61-11(LAN)
60-21
BASE
62-1
62-2
60-31
BASE
ROUTER
ROUTER
ROUTER
62-3
60-12
BASE
63-12
63-23
60-32
BASE
60-22
BASE

FIG. 4

ORIGINATING BASE IDENTIFIER	ROUTE INFORMATION	DESTINATION BASE IDENTIFIER
	1－2	
	1－2、2－3	
⋮	⋮	⋮

41

FIG. 5

ROUTE IDENTIFIER	UPPER LIMIT BANDWIDTH	MAXIMUM BANDWIDTH	CURRENT BANDWIDTH
i	BW_{ui}	BW_{mi}	BW_{ci}
⋮	⋮	⋮	⋮

42

FIG. 6

CALL IDENTIFIER	ROUTE INFORMATION
	1－2
	1－2、2－3
⋮	⋮

43

FIG. 7

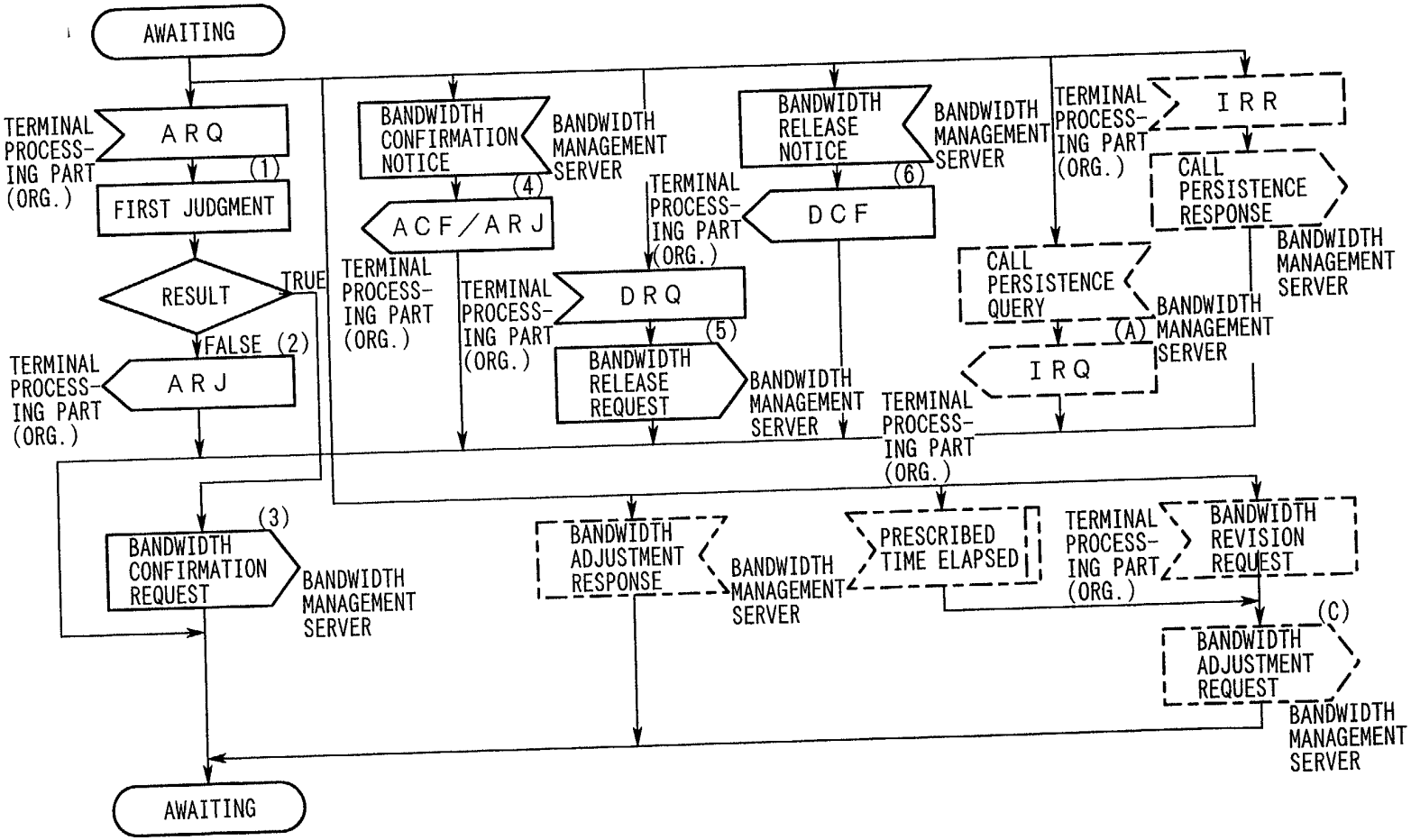

AWAITING
TERMINAL PROCESS-ING PART (ORG.)
ARQ
(1)
FIRST JUDGMENT
RESULT
TRUE
FALSE (2)
TERMINAL PROCESS-ING PART (ORG.)
ARJ
BANDWIDTH CONFIRMATION NOTICE
BANDWIDTH MANAGEMENT SERVER
(4)
ACF/ARJ
TERMINAL PROCESS-ING PART (ORG.)
TERMINAL PROCESS-ING PART (ORG.)
DRQ
(5)
BANDWIDTH RELEASE REQUEST
BANDWIDTH MANAGEMENT SERVER
BANDWIDTH RELEASE NOTICE
BANDWIDTH MANAGEMENT SERVER
(6)
TERMINAL PROCESS-ING PART (ORG.)
DCF
TERMINAL PROCESS-ING PART (ORG.)
IRR
CALL PERSISTENCE RESPONSE
BANDWIDTH MANAGEMENT SERVER
CALL PERSISTENCE QUERY
BANDWIDTH MANAGEMENT SERVER
(A)
IRQ
TERMINAL PROCESS-ING PART (ORG.)
(3)
BANDWIDTH CONFIRMATION REQUEST
BANDWIDTH MANAGEMENT SERVER
BANDWIDTH ADJUSTMENT RESPONSE
BANDWIDTH MANAGEMENT SERVER
PRESCRIBED TIME ELAPSED
TERMINAL PROCESS-ING PART (ORG.)
BANDWIDTH REVISION REQUEST
(C)
BANDWIDTH ADJUSTMENT REQUEST
BANDWIDTH MANAGEMENT SERVER
AWAITING

FIG. 8a

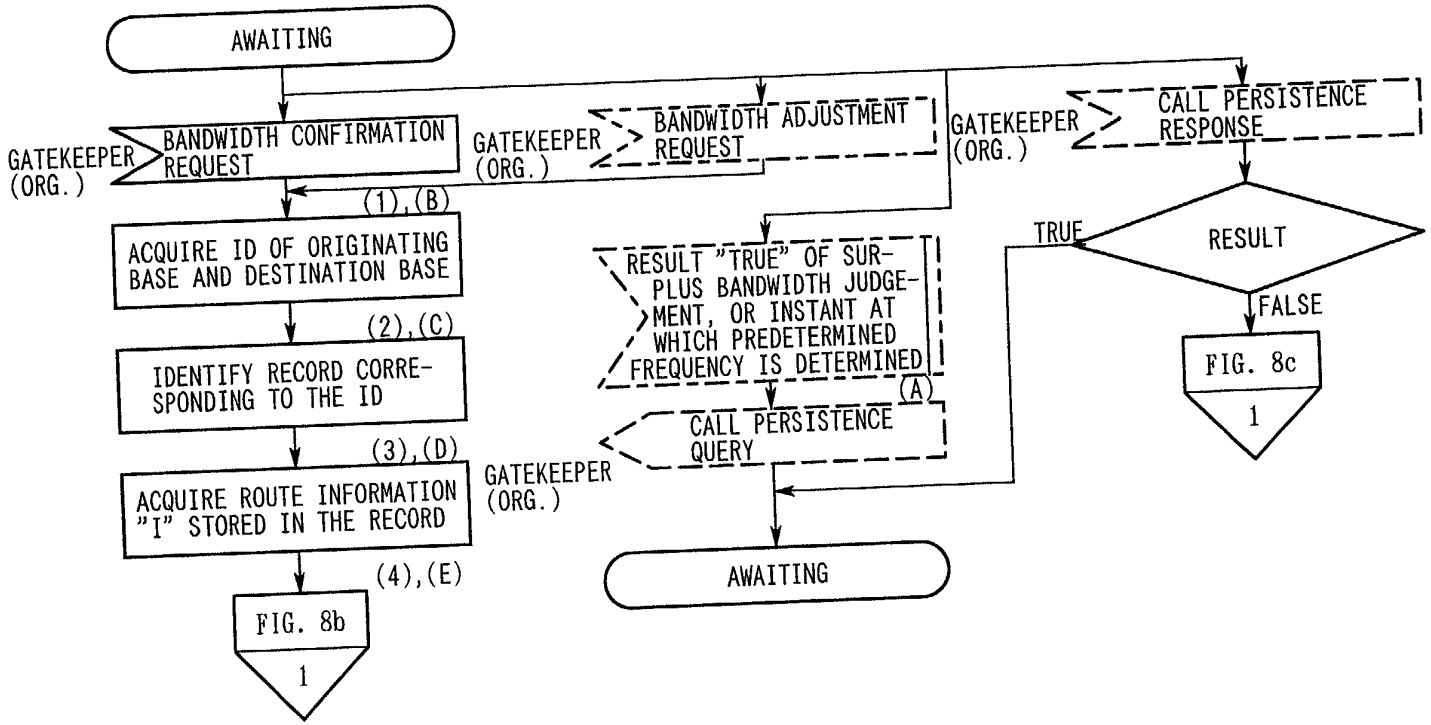

AWAITING
GATEKEEPER (ORG.)
BANDWIDTH CONFIRMATION REQUEST
GATEKEEPER (ORG.)
BANDWIDTH ADJUSTMENT REQUEST
GATEKEEPER (ORG.)
CALL PERSISTENCE RESPONSE
(1),(B)
ACQUIRE ID OF ORIGINATING BASE AND DESTINATION BASE
(2),(C)
IDENTIFY RECORD CORRESPONDING TO THE ID
(3),(D)
ACQUIRE ROUTE INFORMATION "I" STORED IN THE RECORD
(4),(E)
FIG. 8b
1
RESULT "TRUE" OF SURPLUS BANDWIDTH JUDGEMENT, OR INSTANT AT WHICH PREDETERMINED FREQUENCY IS DETERMINED
(A)
GATEKEEPER (ORG.)
CALL PERSISTENCE QUERY
AWAITING
TRUE
RESULT
FALSE
FIG. 8c
1

FIG. 8b

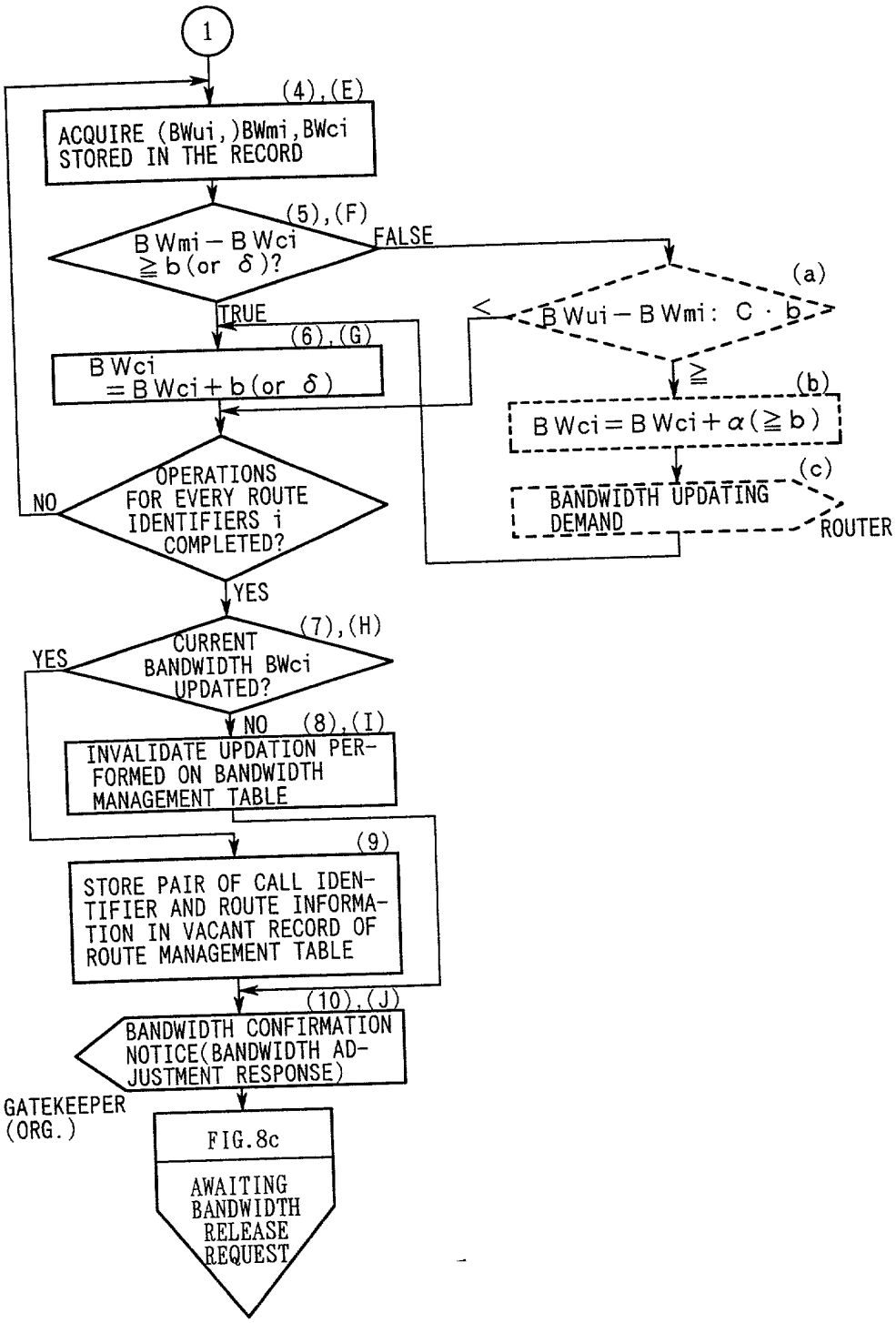

1
(4),(E)
ACQUIRE (BWui,)BWmi,BWci STORED IN THE RECORD
(5),(F)
BWmi − BWci ≧ b(or δ)?
FALSE
TRUE
(a)
BWui − BWmi : C · b
<
≧
(b)
BWci = BWci + α(≧ b)
(c)
BANDWIDTH UPDATING DEMAND
ROUTER
(6),(G)
BWci = BWci + b(or δ)
NO
OPERATIONS FOR EVERY ROUTE IDENTIFIERS i COMPLETED?
YES
(7),(H)
CURRENT BANDWIDTH BWci UPDATED?
YES
NO
(8),(I)
INVALIDATE UPDATION PERFORMED ON BANDWIDTH MANAGEMENT TABLE
(9)
STORE PAIR OF CALL IDENTIFIER AND ROUTE INFORMATION IN VACANT RECORD OF ROUTE MANAGEMENT TABLE
(10),(J)
BANDWIDTH CONFIRMATION NOTICE(BANDWIDTH ADJUSTMENT RESPONSE)
GATEKEEPER (ORG.)
FIG.8c
AWAITING BANDWIDTH RELEASE REQUEST

FIG. 8c

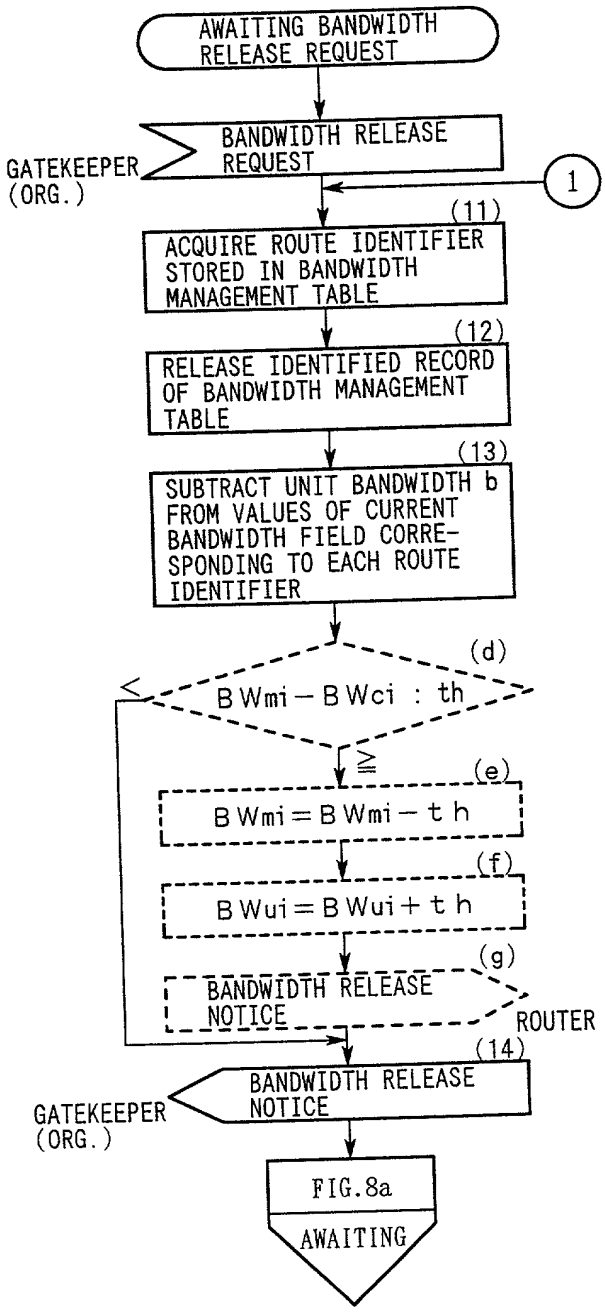

AWAITING BANDWIDTH RELEASE REQUEST
GATEKEEPER (ORG.)
BANDWIDTH RELEASE REQUEST
1
(11)
ACQUIRE ROUTE IDENTIFIER STORED IN BANDWIDTH MANAGEMENT TABLE
(12)
RELEASE IDENTIFIED RECORD OF BANDWIDTH MANAGEMENT TABLE
(13)
SUBTRACT UNIT BANDWIDTH b FROM VALUES OF CURRENT BANDWIDTH FIELD CORRESPONDING TO EACH ROUTE IDENTIFIER
(d)
BWmi − BWci : th
<
≧
(e)
BWmi = BWmi − th
(f)
BWui = BWui + th
(g)
BANDWIDTH RELEASE NOTICE
ROUTER
(14)
GATEKEEPER (ORG.)
BANDWIDTH RELEASE NOTICE
FIG.8a
AWAITING

FIG. 9

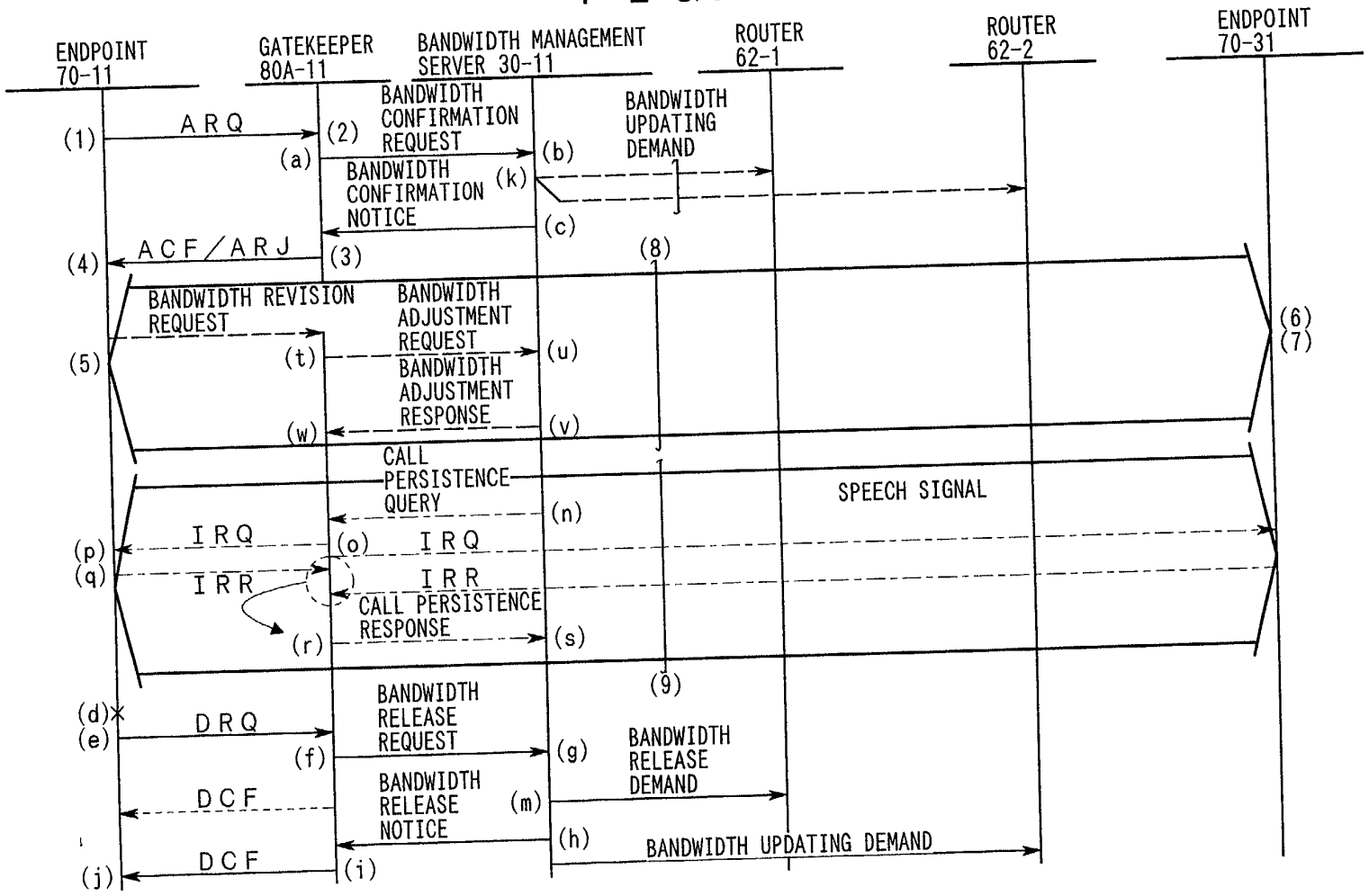

ENDPOINT 70-11
GATEKEEPER 80A-11
BANDWIDTH MANAGEMENT SERVER 30-11
ROUTER 62-1
ROUTER 62-2
ENDPOINT 70-31
(1) ARQ
(2) BANDWIDTH CONFIRMATION REQUEST
(a)
(b) BANDWIDTH UPDATING DEMAND
(k)
BANDWIDTH CONFIRMATION NOTICE
(c)
(4) ACF/ARJ
(3)
(8)
BANDWIDTH REVISION REQUEST
(5)
(t) BANDWIDTH ADJUSTMENT REQUEST
(u)
BANDWIDTH ADJUSTMENT RESPONSE
(w)
(v)
(6)
(7)
CALL PERSISTENCE QUERY
(n)
SPEECH SIGNAL
(p) IRQ
(o) IRQ
(q) IRR
IRR
CALL PERSISTENCE RESPONSE
(r)
(s)
(9)
(d)
(e) DRQ
BANDWIDTH RELEASE REQUEST
(f)
(g) BANDWIDTH RELEASE DEMAND
DCF
BANDWIDTH RELEASE NOTICE
(m)
(h) BANDWIDTH UPDATING DEMAND
DCF
(j)
(i)

FIG. 10

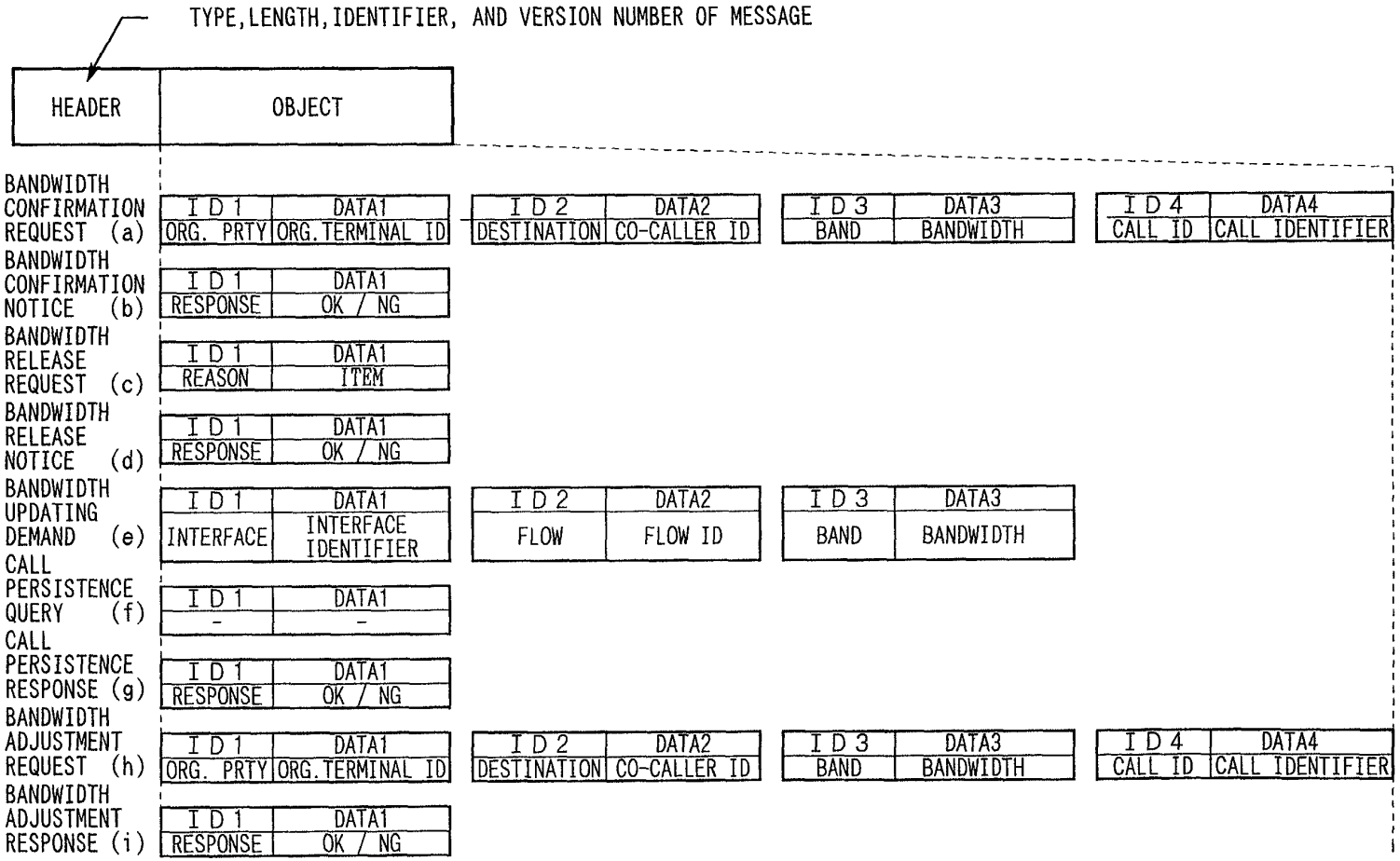

TYPE, LENGTH, IDENTIFIER, AND VERSION NUMBER OF MESSAGE
HEADER
OBJECT
BANDWIDTH CONFIRMATION REQUEST (a)
ID 1 | DATA1 | ID 2 | DATA2 | ID 3 | DATA3 | ID 4 | DATA4
ORG. PRTY | ORG. TERMINAL ID | DESTINATION | CO-CALLER ID | BAND | BANDWIDTH | CALL ID | CALL IDENTIFIER
BANDWIDTH CONFIRMATION NOTICE (b)
ID 1 | DATA1
RESPONSE | OK / NG
BANDWIDTH RELEASE REQUEST (c)
ID 1 | DATA1
REASON | ITEM
BANDWIDTH RELEASE NOTICE (d)
ID 1 | DATA1
RESPONSE | OK / NG
BANDWIDTH UPDATING DEMAND (e)
ID 1 | DATA1 | ID 2 | DATA2 | ID 3 | DATA3
INTERFACE | INTERFACE IDENTIFIER | FLOW | FLOW ID | BAND | BANDWIDTH
CALL PERSISTENCE QUERY (f)
ID 1 | DATA1
- | -
CALL PERSISTENCE RESPONSE (g)
ID 1 | DATA1
RESPONSE | OK / NG
BANDWIDTH ADJUSTMENT REQUEST (h)
ID 1 | DATA1 | ID 2 | DATA2 | ID 3 | DATA3 | ID 4 | DATA4
ORG. PRTY | ORG. TERMINAL ID | DESTINATION | CO-CALLER ID | BAND | BANDWIDTH | CALL ID | CALL IDENTIFIER
BANDWIDTH ADJUSTMENT RESPONSE (i)
ID 1 | DATA1
RESPONSE | OK / NG

FIG. 11

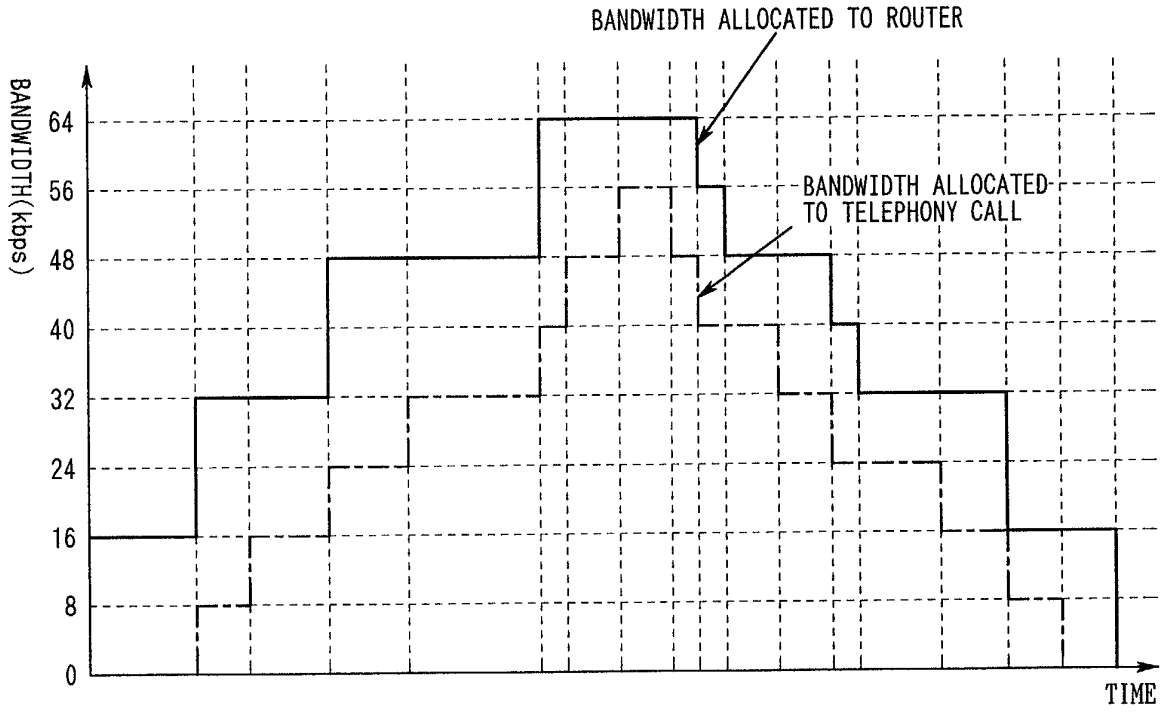

BANDWIDTH ALLOCATED TO ROUTER
BANDWIDTH ALLOCATED TO TELEPHONY CALL
BANDWIDTH(kbps)
64
56
48
40
32
24
16
8
0
TIME

FIG. 12

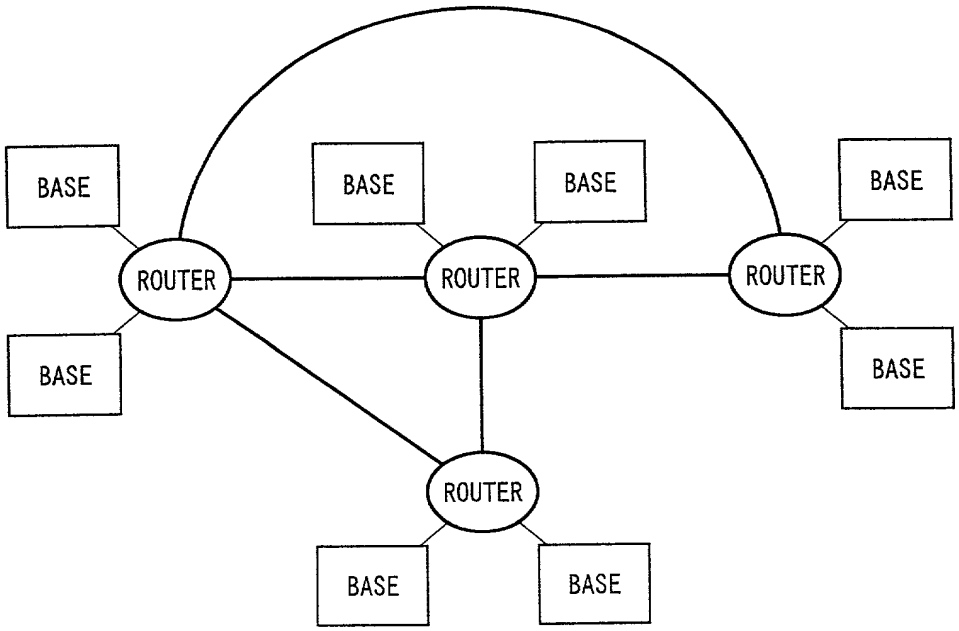
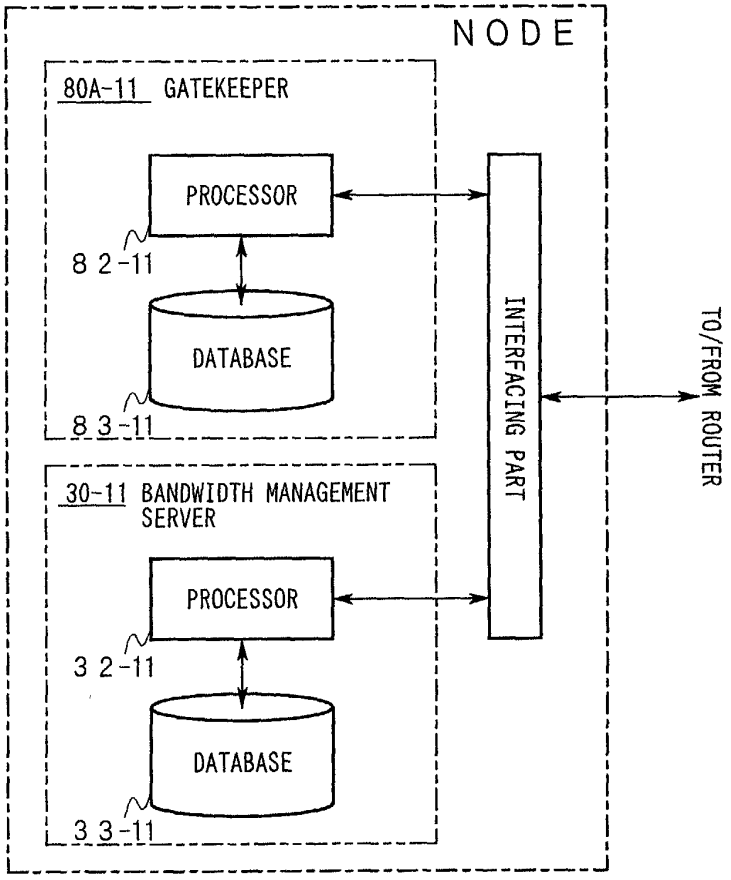
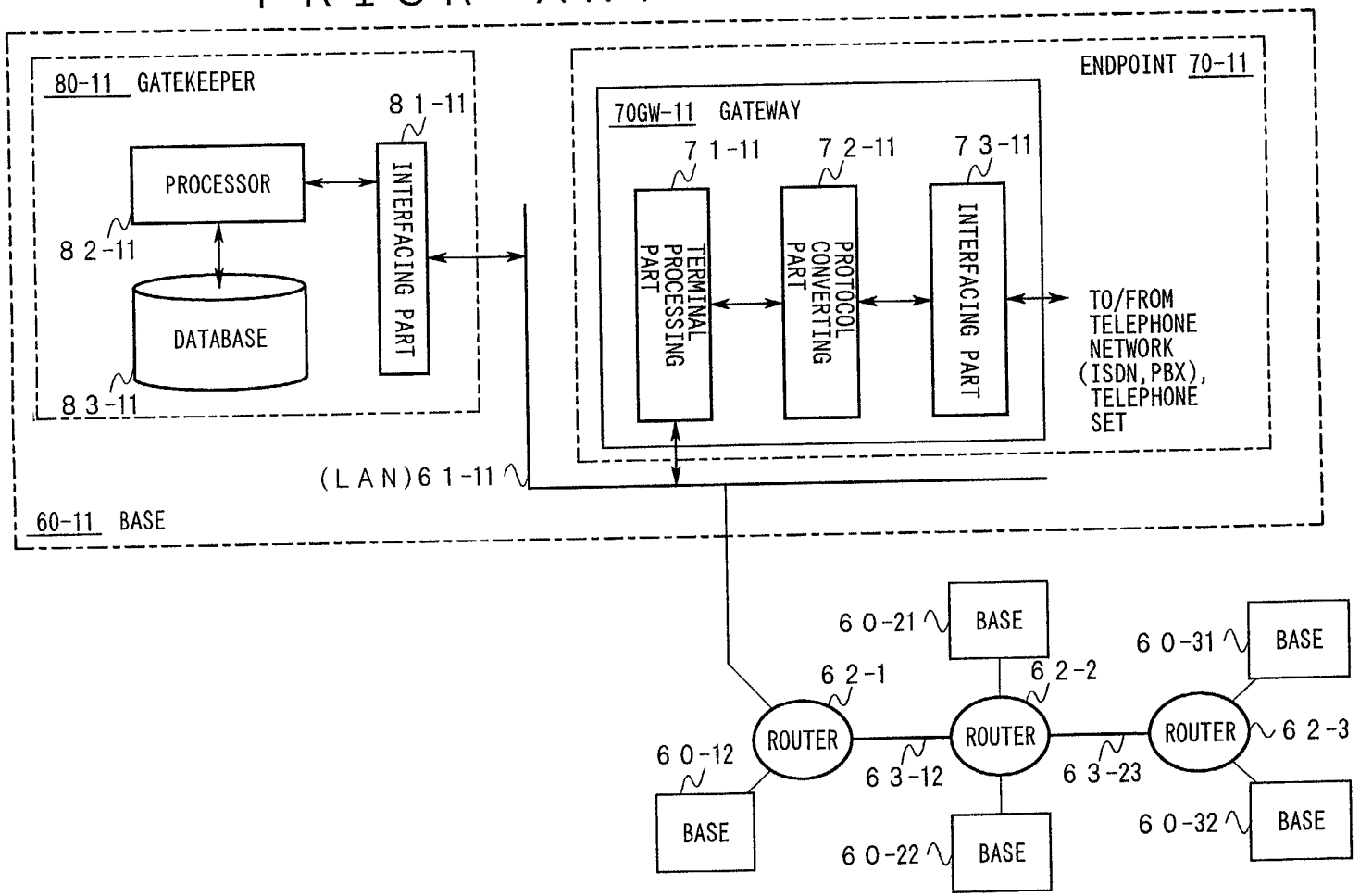

BASE
BASE
BASE
BASE
ROUTER
ROUTER
ROUTER
BASE
BASE
ROUTER
BASE
BASE

FIG. 13


NODE
80A-11 GATEKEEPER
PROCESSOR
82-11
DATABASE
83-11
30-11 BANDWIDTH MANAGEMENT SERVER
PROCESSOR
32-11
DATABASE
33-11
INTERFACING PART
TO/FROM ROUTER

PRIOR ART FIG. 14



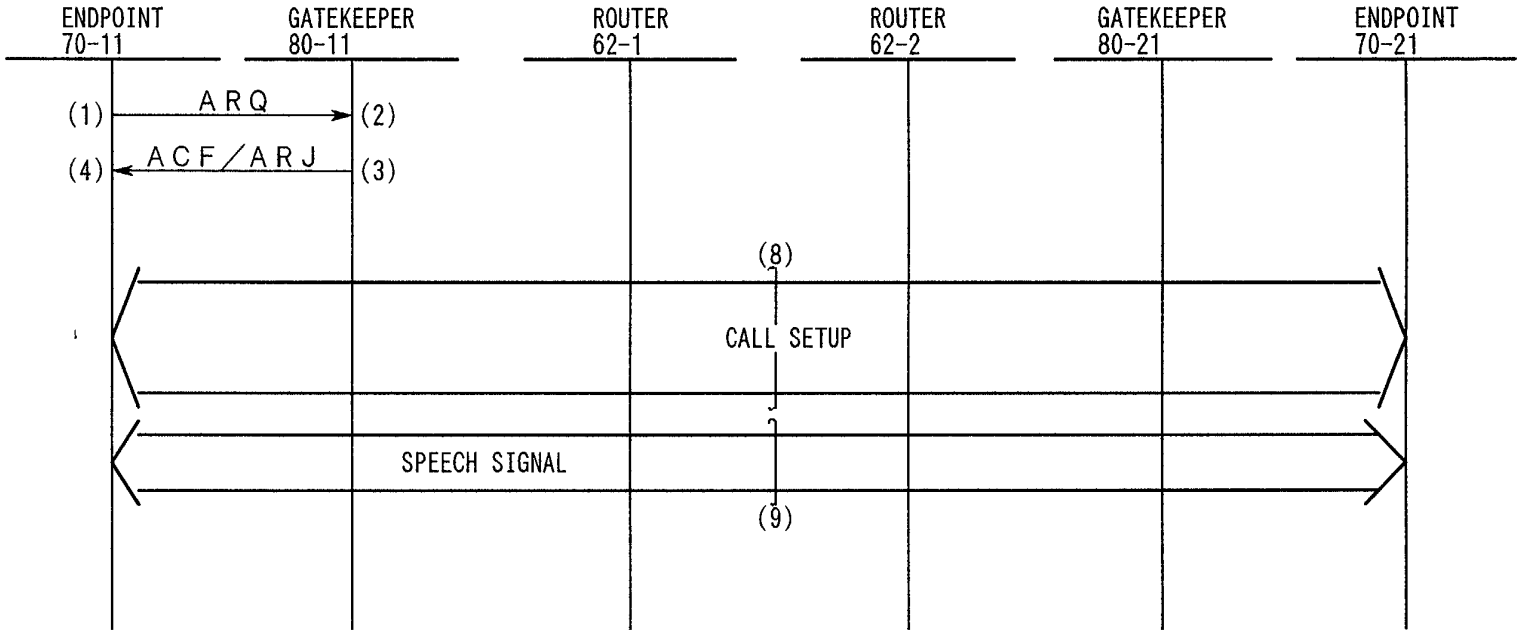
PRIOR ART FIG. 15

TELEPHONE NUMBER	IP ADDRESS
⋮	⋮

84-11

PRIOR ART FIG. 16

ORIGINATING TERMINAL IDENTIFIER	STATE INFORMATION	CO-CALLER IDENTIFIER
⋮	⋮	⋮

85-11

PRIOR ART FIG. 17